



# growing up in Scotland



## GUS as a biomedical resource

Paul Bradshaw

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# What is GUS?

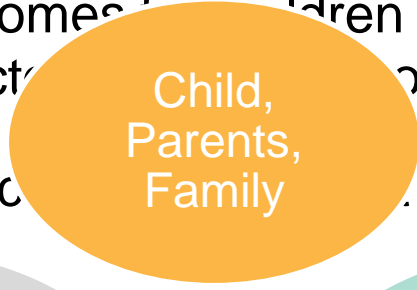
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- Large-scale longitudinal birth and child cohort study involving national samples of children living in Scotland
- Three cohorts:
  - Birth cohort 1: 5217 children, born 2004/05, aged 10.5 months at 1<sup>st</sup> interview plus a 'boost' sample of 502 children at age 12
  - Child cohort: 2859 children, born 2002/03, aged 34.5 months at 1<sup>st</sup> interview
  - Birth cohort 2: 6127 children, born 2010/11, aged 10.5 months at 1<sup>st</sup> interview
- Commissioned by the Scottish Government and running since 2005



# Primary objectives and domains of interest

- Explore change and stability in children's lives from childhood on into adulthood
- Identify changes in children's lives and processes that influence these changes
- Document outcomes for children of different backgrounds and identify protective factors
- Highlight those risk and protective factors that are amenable to local and national policy influence
- Focus on substance use, mental health, and good School Leaver destinations, limited or no employment
- Provide evidence to inform policy and service development and family support



# Ages and stages (so far...)

Child's age	Cohort/Year of data collection		
	Child cohort	Birth cohort 1	Birth cohort 2
10 months		2005/06	2010/11
Age 2		2006/07	
Age 3	2005/06	2007/08	2013
Age 4	2006/07	2008/09	
Age 5	2007/08	2009/10	2015
Age 6	2008/09	2010/11	
Age 8		2012/13	
Primary 6 (Age 10)		2015/16	
S1 (Age 12)		2017/18	
S3 (Age 14)		2019/20	
<b>Age 17 (S6)</b>		<b>2021-23</b>	

# Within-sweep response and cumulative attrition by sweep – BC1

	No. cases achieved	Response rate	
		As % of issued	As % of sw1 achieved
<b>BC1</b>			
Sweep 1	5217	80%	100%
Sweep 2	4512	88%	86%
Sweep 3	4193	90%	80%
Sweep 4	3994	91%	77%
Sweep 5	3833	92%	74%
Sweep 6	3657	87%	70%
Sweep 7	3453	83%	66%
Sweep 8	3210	87%	62%
Sweep 9 (main sample only)	2917	82%	56%
Sweep 9 (combined main & boost)	3419	70%	N/A
Sweep 10 (main sample only)	2669	79%	51%
Sweep 10 (combined main & boost)	2943	76%	N/A



# GUS topic coverage

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Household composition

Employment

Income and financial management

Parental demographics

Child/adolescent health and development

Other household parents

Childcare and pre-school

Parental health

School

Anti-social behaviour

Parental support

Parenting

Parent and child social networks

Neighbourhood and community

Activities

Food and nutrition

Parental relationships

Housing and Accommodation

Technology

Health behaviours

# Child/young person survey data

Topic	Age 8	Age 10-11	Age 12-13	Age 14-15	Age 17-18
Physical activity				✓	✓
Sleep				✓	✓
Smoking			✓	✓	✓
Alcohol			✓	✓	✓
Drugs			✓	✓	✓
Diet					✓
Mental health			✓	✓	✓
Life Satisfaction	✓	✓	✓	✓	✓
Self-harm					
Body satisfaction		✓	✓	✓	✓
Perception of weight		✓	✓	✓	✓
Puberty				✓	✓
Pregnancies					✓



# Parent-report survey data about child

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Physical & sedentary activity



Dental health



Food & eating



Sleep



General health & longstanding illness and disability



Developmental milestones

Contact with health services



Communication & language



Social, emotional & behavioural development



Perception of weight

# Parent-report survey data about parent

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General health  
& longstanding  
illness and  
disability



Physical and  
mental health &  
wellbeing



Adverse  
childhood  
experiences



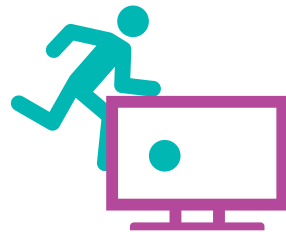
Pregnancy &  
birth



Perception of  
weight



Smoking,  
alcohol & drugs



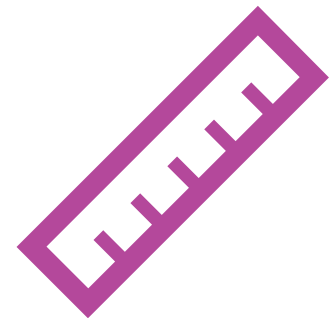
Physical &  
sedentary  
activity

# Objective data – height and weight

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- Measured in home by trained survey interviewers using scales and stadiometers
- Child measured at ages 4, 6, 8, 10, 12, 14 and 17
- Child's mother measured when child aged 6
- BMI pre-calculated in dataset and a range of variables included with standard cut-offs derived for healthy weight, overweight, obese etc
- Raw height and weight also included
- A range of publications have utilised these data – references available on our website:

<https://growingupinScotland.org.uk/publications>



# Objective data – physical activity

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- Collected as part of the SPACES study run by MRC/CSO SPHSU University of Glasgow
- Activity monitors and GPS devices worn for 8 days during waking hours



- Age 10 – 800 participants with at least 5 days of valid data
- Age 17 – data collection ongoing
- A range of derived measures will be available, e.g. of time spent in sedentary/light/moderate-vigorous activity etc
- Data will be available via UKDS by early 2023

# Linked health data – minimum dataset

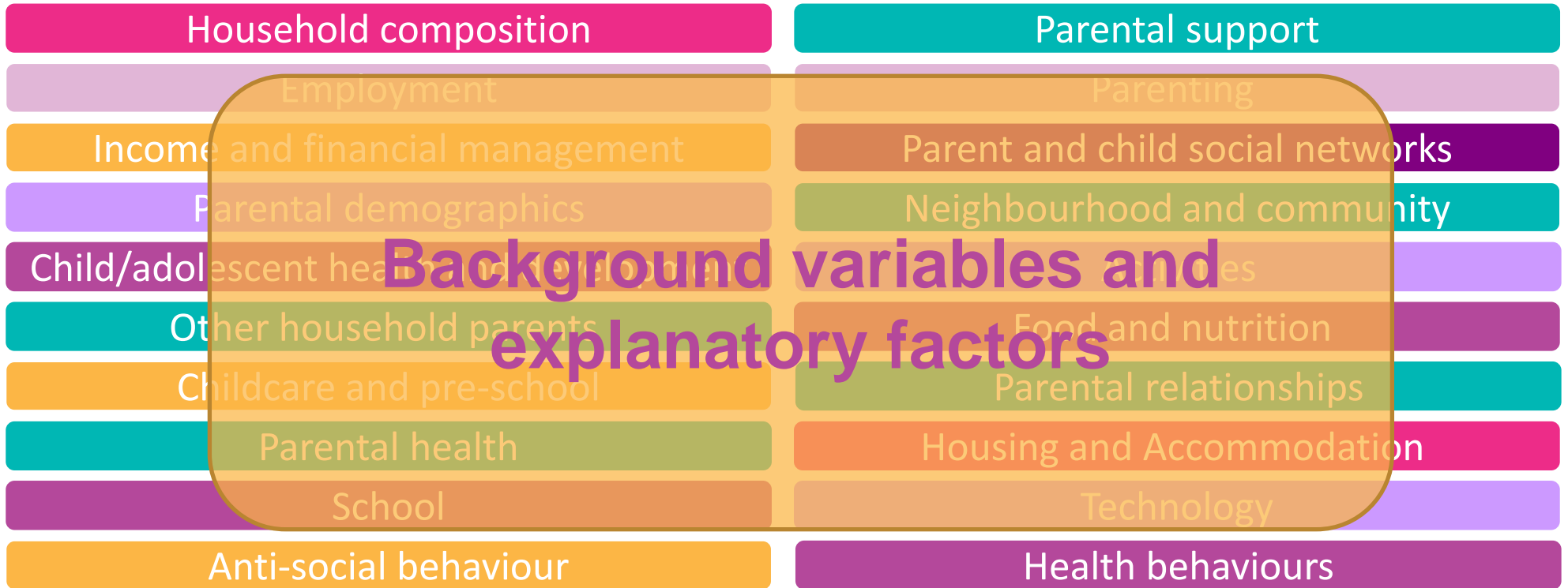
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- **SMR00:** e.g. no. of OP attendances; dates of 1st attendance
- **SMR01:** e.g. no. of IP admissions; dates of 1st attendance; elective, emergency, respiratory, injury and dental
- **SMR02:** e.g. gestation; maternal height and weight; AGPAR; birthweight; head circumference; neonatal admission
- **Immunisations (SIRS):** e.g. DTaP/IPV/Hib; PCV; MenB; MMR
- **Child Health Surveillance Programme: Pre-School:** e.g. 1<sup>st</sup> visit; 6-8 week; 8-9 mth; 21-24 mth; 2 year
- **CHSP-S:** e.g. P1 review; P1 assessment
- **A&E:** e.g. No. of attendances; date of 1<sup>st</sup> attendance
- **Dental – NDIP:** P1 dental inspection – e.g. evidence of decay/risk of decay inc. no of teeth with decay
- **Dental - MIDAS:** e.g. whether registered with/attended dentist; whether/when fissure sealants applied

# GUS topic coverage

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# Data availability via UKDS

Child's age	Cohort/Year of data collection		
	Child cohort	Birth cohort 1	Birth cohort 2
10 months		2005/06	2010/11
Age 2	All survey data (special licence)		
Age 3	2005/06	+	2007/08
Age 4	2006/07		2008/09
Age 5	Revised geography variables (datazone, intermediate geography, local authority – secure licence)		
Age 6	2008/09	+	2010/11
Age 8			2012/13
Primary 6 (Age 10)	Care Inspectorate Early Learning and Childcare quality data (secure licence)		
S1 (Age 12)			2017/18
S3 (Age 14)			2019/20
Age 17 (S6)			2021-23

# Accessing **linked data**

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- Data access via NHS NSS National Safe Haven (or linked Trusted Research Environment)
- Applications are co-ordinated by eDRIS - electronic Data Research and Innovation Service – and reviewed by the Health and Social Care Public Benefit and Privacy Panel (PBPP)
- Researchers require appropriate Information Governance training (e.g. ONS Safe Research, MRC Research, GDPR and Confidentiality modules)
- Available data is not limited to minimum dataset
- Additional info – [gus@scotcen.org.uk](mailto:gus@scotcen.org.uk) or eDRIS: <https://www.isdscotland.org/products-and-services/edris/>



# Accessing GUS data

Accessing GUS Data

## Accessing GUS Data

GUS data can be accessed from the [UK Data Service](#) (follow the direct link or search for 'Growing Up in Scotland' and click 'Series'). To download the data you will first need to [register with the UK Data Service](#).

An overview of the topics covered at each sweep, and all documentation, including user guides and copies of the questionnaire, are available [here](#) or from the UK Data Service. Practical help with using GUS data is available [here](#).

If you have questions about using the data, or if you have a research question but don't have the skills to analyse the data, please contact [gus@scotcen.org.uk](mailto:gus@scotcen.org.uk).

**Using GUS data? Please let us know!**

If you use GUS, please let us know by emailing [comms@natcen.ac.uk](mailto:comms@natcen.ac.uk).

This helps us to keep track of what the data is being used for so that we can demonstrate impact.

Please let us know if you're interested in discussing your research or your findings with relevant policy officers or practitioners by emailing [GUS@aov.scot](mailto:GUS@aov.scot).

UK Data Service

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## Growing Up in Scotland

Abstract FAQ's Resources [Access data](#)

### Access data

GN 33437  
Growing Up in Scotland, 2005: Special Licence Access

SN	Study description	Explore online	Select
8366	<a href="#">Growing Up in Scotland: Cohort 1, Primary 6 Teacher Survey, 2014-2015: Special Licence Access</a>		<a href="#">Login</a>
7432	<a href="#">Growing Up in Scotland: Cohort 2, Sweeps 1-3, 2011-2015: Special Licence Access</a>		<a href="#">Login</a>
5760	<a href="#">Growing Up in Scotland: Cohort 1, Sweeps 1-9, 2005-2018: Special Licence Access</a>		<a href="#">Login</a>

GN 33456  
Growing Up in Scotland, 2005: Secure Access

SN	Study description	Explore online	Select
8544	<a href="#">Growing Up in Scotland: Cohort 2, Early Learning and Childcare Administrative Data, 2013-2015: Secure Access</a>		<a href="#">Login</a>
8543	<a href="#">Growing Up in Scotland: Cohort 1, Early Learning and Childcare Administrative Data, 2008-2010: Secure Access</a>		<a href="#">Login</a>
8542	<a href="#">Growing Up in Scotland: Cohort 2, Sweep 3, Geography Data, Intermediate Geography and Local Authority, 2015-2016</a>		<a href="#">Login</a>

<https://growingupinScotland.org.uk/using-gus-data/accessing-gus-data/>

# Case studies – child obesity



Validity of Scottish predictors of child obesity (age 12) for risk screening in mid-childhood: a secondary analysis of prospective cohort study data— with sensitivity analyses for settings without various routinely collected predictor variables, Carrillo-Balam, G., Doi, L., Marryat, L., Williams A.J., Bradshaw, P. and Frank, J. (2022) *International Journal of Obesity*, doi.org/10.1038/s41366-022-01157-5

# Case studies – physical activity

MRC/CSO Social and Public Health Sciences Unit



Medical  
Research  
Council



CHIEF  
SCIENTIST  
OFFICE



University  
of Glasgow

**The SPACES study: Harnessing the value of wearable technology and GUS data linkage to explore the impact of the built, natural, and social environment on young people's health and wellbeing**

The relationship between living in urban and rural areas of Scotland and children's physical activity and sedentary levels: a country-wide cross-sectional analysis (2020) McCrorie, P., Mitchell, R., MacDonald, L., Jones, A., Coombes, E., Schipperijn, J. and Ellaway, A. in *BMC Public Health*. doi: 10.1186/s12889-020-8311-y, PMID:32156285, PMCID:PMC7065337

# Contact

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Social Research that works for society

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